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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/804,522	03/12/2001	Paul E. Johnson	W02.101	9091

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EXAMINER

LAVARIAS, ARNEL C

ART UNIT	PAPER NUMBER
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2872

DATE MAILED: 03/19/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/804,522

Applicant(s)

JOHNSON, PAUL E.

Examiner

Arnel C. Lavarias

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 24 December 2002.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☒ The proposed drawing correction filed on 24 December 2002 is: a) ☒ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Oath/Declaration***

1. The submission of a substitute declaration or oath to correct the deficiencies set forth in Paper No. 7, dated 9/25/02, is acknowledged and accepted.

### ***Drawings***

2. The proposed drawing correction and/or the proposed substitute sheets of drawings, filed on 12/24/02 in Paper No. 9 have been approved.

### ***Response to Amendment***

3. The amendments to the specification of the disclosure in Paper No. 9, dated 12/24/02, are acknowledged and accepted.
4. The amendment to Claim 5 in Paper No. 9, dated 12/24/02, is acknowledged and accepted. The Examiner respectfully withdraws the objections to Claim 5.
5. The affidavit filed on 12/24/02 in Paper No. 8 and 9 under 37 CFR 1.131 is sufficient to overcome the Maekawa et al. reference. In particular, the affidavit shows conception of the claimed invention, as least as early as 10/12/99 (See Exhibit C), which is earlier than the 7/7/00 filing date of the Maekawa et al. reference. The affidavit additionally shows due diligence on the part of the Applicant to develop the claimed invention (See Exhibits H, I, J, K, and L), remove obstacles to the invention's development (See Exhibits E, F, and G), and prepare and file a U.S. application for the claimed invention

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(See Exhibits B, C, M, and N) during the time period of 4/4/00 to the file date of the instant application, 09/804,522. As such, the Examiner respectfully withdraws the rejections to Claims 1-20.

*Specification*

6. The disclosure is objected to because of the following informalities:

Page 6, line 19- 'lenseless' should read 'lensless'.

Appropriate correction is required.

*Claim Rejections - 35 USC § 102*

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1, 2, 6-8, and 13 are rejected under 35 U.S.C. 102(e) as being anticipated by Maekawa et al.

With regard to Claims 1, 2, and 6, Maekawa et al. discloses an LED illumination source device for use in a flow particle detection device, such as in a flow cytometer (See Figures 1, 3, 5, 6, 9; col. 3, line 56-col. 5, line 62), comprising an LED (See 16 in Figure 5; 29 in Figure 9; col. 5, lines 6-13) for providing light at a selected wavelength, and an optical element (See 30, 21 in Figure 9) for collecting nearly all of the light from the LED and concentrating the collected light at a selected volume within a flow sample stream.

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Maekawa et al. additionally discloses the optical element comprising a collecting element (See 30 in Figure 9) and a focusing element (See 21 in Figure 9).

With regard to Claims 7, 8, and 13, Maekawa et al. discloses a particle detection apparatus, such as a flow cytometer (See Figures 1, 3, 5, 6, 9; col. 3, line 56-col. 5, line 62), comprising equipment for passing the sample stream through the flow zone (See 1, 2 in Figures 1, 3, 5, 6, 9), an illumination device (See 16 in Figure 5; 29 in Figure 9), and a detector assembly (See 14 in Figure 9), which includes a detector that detects light emitted or scattered from illuminated target particles resulting from illumination, wherein the illumination device includes an LED (See col. 5, lines 6-13) for providing light at a selected wavelength and an optical element (See 30, 21 in Figure 9) for collecting nearly all of the light from the LED and concentrating the collected light at a selected volume within a flow sample stream. Maekawa et al. additionally discloses the optical element comprising a collecting element (See 30 in Figure 9) and a focusing element (See 21 in Figure 9).

### *Claim Rejections - 35 USC § 103*

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 4, 10-12, 14-18, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maekawa et al. in view of Martin et al.

With regard to Claims 4, 10-11, 14, 18, and 20, Maekawa et al. discloses the invention as set forth above in Claims 1 and 7. Maekawa et al. lacks the LED providing light at two selected wavelengths. However, Martin et al. teaches a multiple source flow cytometer apparatus (See Figure 1) wherein two sources (See 10 and 12 in Figure 1) with two different wavelengths (See col. 3, line 62-col. 4, line 20) are used to illuminate the particle flow (See 16 in Figure 1) to induce fluorescence and light scattering. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate sources providing light at different wavelengths, as taught by Martin et al., in the particle detection apparatus as disclosed by Maekawa et al. One would have been motivated to do this to provide source illumination for multiple dyes that may be bound to the particles in the sample flow and to additionally eliminate background noise due to cross-interference in multiple light sources measurements.

With regard to Claims 15 and 17, Maekawa et al. discloses the invention as set forth above in Claims 1 and 7. Maekawa et al. lacks the detector assembly comprising two detectors. However, Martin et al. teaches a multiple source flow cytometer apparatus (See Figure 1) wherein two or more detectors (See for example 24, 26, 32, 34 in Figure 1) are used to detect the fluorescence and scattered light from the sample particle flow (See 16 in Figure 1). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate multiple detectors, as taught by Martin et al., in the particle detection apparatus as disclosed by Maekawa et al. One would have been motivated to do this to detect fluorescence and scattered light at

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multiple wavelengths from multiple dyes attached to the particles in the sample particle flow.

With regard to Claims 12 and 16, Maekawa et al. discloses the invention as set forth above in Claims 1 and 7. Maekawa et al. lacks the sample stream including two fluorescent dyes that emit at two different wavelengths. However, Martin et al. teaches a multiple source flow cytometer apparatus (See Figure 1) wherein the particles in the sample particle flow are stained with two or more fluorescent dyes (See col. 3, line 62-col. 4, line 20), each dye fluorescing at different wavelengths. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide multiple fluorescent dyes on the particles in the sample particle flow, as taught by Martin et al., in the particle detection apparatus as disclosed by Maekawa et al. One would have been motivated to do this to detect multiple components of the particles in the sample particle flow.

11. Claims 3, 9, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maekawa et al. in view of Martin et al.

Maekawa et al. in view of Martin et al. discloses the invention as set forth above in Claims 1, 7, and 14. Maekawa et al. in view of Martin et al. lacks the collecting element being a ball lens. It would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate a ball lens to collect the illumination light from the light source since it is well known in the art of optics and lasers to use a ball lens to collect and collimate light from light emitting diodes and laser diodes. One would

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have been motivated to do this to increase the volume of the particle flow that is irradiated and therefore to increase the fluorescence collection efficiency.

12. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Maekawa et al. in view of Ross et al.

Maekawa et al. discloses the invention as set forth above in Claim 1. Maekawa et al. lacks the LED being a side-emitting lensless LED. However, Ross et al. teaches a photometric diagnostic instrument (See for example Figure 1 or Figure 2) wherein the light sources (See 20 in Figure 1 or Figure 2) utilized are surface mount lensless LEDs (See col. 4, line 66-col. 5, line 16; Figure 7). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate lensless LEDs as the light source, as taught by Ross et al., in the LED illumination source device as disclosed by Maekawa et al. One would have been motivated to do this to provide a more uniformly diverging source for illumination prior to focusing using a lens.

### *Conclusion*

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Arnel C. Lavarias whose telephone number is 703-305-4007. The examiner can normally be reached on M-F 8:30 AM - 5 PM.

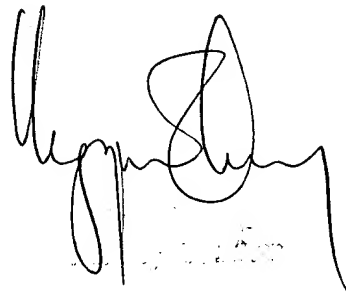
The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7722 for After Final communications.



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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1782.

Arnel C. Lavarias  
March 12, 2003

A handwritten signature in black ink, appearing to read 'Arnel C. Lavarias', with a stylized, cursive script.